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GUEST EDITORIAL

Preface

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The First International Conference on Combinatorial Optimization and Applications (abbreviated as COCOA 2007), was held August 12–15, 2007 in Xi'an, China. Some of the best papers were invited to be published in this special issue of *Journal of Combinatorial Optimization*. The seven selected papers are across computational biology, computational geometry, scheduling, mathematical programming, graph theory, and facility location.

The first paper is "On minimum m-connected k-dominating set problem in unit disc graphs", by Weiping Shang, Frances Yao, Pengjun Wan and X.-D. Hu. The authors studied the problem of computing the minimum m-connected k-dominating set in unit disc graphs. Efficient approximation algorithms are presented.

The second paper "On threshhold BDDs and the optimal variable ordering problems", by Markus Behle, focuses on computing a BDD (binary decision diagram) for a linear constraint in integer programs. An output-sensitive algorithm is presented.

In the third paper "An asymptotic PTAS for batch scheduling with nonidentical job sizes to minimize makespan", Yuzhong Zhang and Zhigang Cao studied a variation of the traditional batch scheduling problems. A PTAS is designed for this interesting problem.

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In the fourth paper "A Lagrangian relaxation approach for the multiple sequence alignment problem", Ernst Althaus and Stefan Canzar presented a branch-and-bound approach for the multiple sequence alignment problem. A novel application of Lagrangian relaxation is used throughout the paper.

In the fifth paper "Approximation algorithms for connected facility location problems", Mohammad K. Hasan, Hyunwoo Jung and Kyung-Yong Chwa presented a factor-8.29 approximation for the connected facility location problem on graphs, improving the previous bound of 8.55.

In the sixth paper "Finding the anti-block vital edge of a shortest path between two nodes", Bing Su, Qingchuan Xu and Peng Xiao studied the problem of finding a critical edge for a shortest path in a weighted graph. A polynomial time solution is presented.

Finally, in the seventh paper "Point sets in the unit square and large areas of convex hulls of subsets of points", Hanno Lefmann obtained a tight bound for a variation of Heilbronn's famous triangle problem.

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